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ABSTRACT

According to the 1980-81 edition of the "Occupational Outlook Handbook," the market for graduates of technical communication programs is good and likely to get better during the 1980s, especially in the areas of electronics and computer and environmental science. The first step in setting up a technical communication program at a college or university is to find out what, for whom, and how technical communicators write. Forming an advisory committee of practicing technical writers will keep the faculty informed of the needs of practitioners and establish a network of potential employers. In addition to providing the technical writing instruction most in demand by employers, the program should include study in mathematics and the sciences, and the faculty should include instructors knowledgeable in the skills of oral communication, interviewing, and understanding graphic presentations. A community environment that will provide practicing technical writers for the advisory committee, internships for students, and ultimately employment, is also an important factor to consider when planning a technical communication program. (HTH)

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BUILDING A TECHNICAL COMMUNICATION PROGRAM

by

Thomas E. Pearsall*

Recent research by Dr. Earl McDowell of our Rhetoric faculty and myself found 25 programs in the United States with something either called or resembling a technical communication program. By program, I mean a program that grants a degree ranging from an AA to a Ph.D. The titles of some of the degrees will indicate somewhat the range of these programs: BA in Industrial Media; BA in Industrial Communications Specialist; MS in Science Communication; BA in English, Writing-Editing Option; AS in Technical Writing; BS in Technical Writing and Editing. These programs range in size from 2 students to 270. The total number of students enrolled is over 1400. Of the 25 programs, 17 have come into existence since 1970. Obviously, in a small way, it's a bit of a growth industry. It even has its own organization, The Council for Programs in Scientific and Technical Communication, an organization that was founded in Minnesota in 1974.

I address myself briefly to answering two questions that would likely be in the mind of anyone considering increasing the number of programs from 25 to 26. First, what is the market for technical

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communicators? Second, how does one go about setting up a program?

According to the 1980/81 Occupational Outlook Handbook, 24,000 technical writers and editors were employed in 1978. For a comparison figure, the same source records 45,000 people working as newspaper reporters in 1978. In 1978, 240 journalism schools turned out over 6,000 graduates into that 45,000 person market.[1] Assuming that something over one-fourth of the 1400 technical communication students graduate every year, the comparable figure is 400 into a market of 24,000. The odds do seem better for the technical communication students and, in fact, they are. The programs we have checked indicate that their good students are snapped up immediately, and even the poorer ones usually land a job. In our midwestern school we have recruiters from both coasts after our students despite the fact that most of our students seem to prefer the Minnesota area and most, in fact, do find work there.

What are the pay scales? According to the Occupational Outlook Handbook again, starting salaries for technical writers range from $8,000 to $19,000 a year. I suspect that graduates of technical communication programs are mainly in the high range of that spread. In 1980, of our 18 graduates, the lowest reported salary was $14,040 and the highest $18,900. The average starting salary for all of our graduates reporting was $16,740. The first two students hired from our 1981 graduating class have both received over $21,000 per year.

What is the outlook for the future? According to the Occupational Outlook Handbook, "Employment of technical writers is expected to

increase about as fast as the average for all occupations during the 1980's. .... graduates of technical writing programs should be in particular demand, especially those with backgrounds in areas of growing importance such as computer science, environmental science, and electronics."

Where is the market both by industry and by region? As the above quote indicates, computer science, environmental science, and electronics are where many jobs are. Defense industries, aerospace, energy, and the health sciences are also fertile fields. Government at local, state, and federal levels hires technical writers. In general, any field that has a high technology product and a low technology user needs technical writers. A computer industry furnishing computers to a bank to be used by high school graduate tellers and clerks is a perfect paradigm of what I mean.

Regionally, the hot spots for technical writers are the Northeast, Texas, and California; however, technical writers can be found in every urban area of the United States.

The second question: How does one go about setting up a program to educate technical communicators? Hidden away in that question is another one: Is your environment suited to a technical communication program?

The first step in answering both these questions is to find out what it is that technical communicators really do. First of all, what do they write? The Occupational Outlook Handbook tells us this:

> Manuals, reports, and proposals make up the bulk of technical writing today; however, the work may take other forms. Technical writers may write specifications; prepare speeches and news releases; edit and write technical books; prepare articles for popular magazines; develop advertising copy, promotional brochures, and texts for exhibits and displays; and handle technical documentation.

How do they go about this work? Technical writers are the great interpreters of our age. They begin by researching the technical knowledge they are to write about. Often, they start with the scientist or technician who possesses the needed knowledge. There is an interview often followed by much poring over documents, schematics, and cryptic notes furnished by the scientist or technician. Out of this welter of information, the writer has to fashion a document that satisfies the technical expert with its accuracy and that also teaches, informs, and sometimes persuades the intended audience, usually people with much less technical expertise than the scientist or technician. Usually the technical writer works with a technical illustrator, but the writer must have a grasp of what the illustrator can provide.

In some shops, the technical writer turns the draft over to an editor who sees it through publication. In others the writer carries out this stage as well. More and more the writer may also be required to compose on word processing equipment.

However, this bare recital is not enough for you to really know what it is that technical writers do. You have to be with them for a while or better still try your own hand at technical writing. Get to know technical writers. If you have a local chapter of the Society for Technical Communication nearby, join it. If, after all this, you still want to think about a program in technical communication, form an advisory committee of practicing technical writers. Such a committee has two great advantages: it keeps you in touch with the needs of practitioners and it is the start of a network of potential employers for your students. It has one disadvantage. Each member of the committee will want you to train people for the precise needs of his or her shop. Such demands frequently are too narrowly vocational for a university setting or for a university philosophy. This can be a critical point. We are told that most of our graduates will go through one or more career changes in their lifetimes. Education that is too narrow may hinder the ability to change. Despite this disadvantage, an advisory committee is a necessary part of your program development.

Of course, you can also learn from existing programs. In 1979, we revised extensively our program in technical communication that we had begun in 1971. As part of the revision process, we queried three groups of people about our program: graduates of the program, members of the Society for Technical Communication (STC), and potential employers of our graduates. The complete findings are reported elsewhere.[2] However, I'll give you some of the key points here.

The participants in the survey were asked to rate the communication courses in our program on a scale of 1 (very unimportant) to 5 (very important). Obviously, this survey is biased to a degree by the courses we offer in the major. The STC members ranked the top eight courses in this manner:

1. Scientific and Technical Writing
2. Interviewing
3. Scientific and Technical Presentations (speech and graphics)
4. Writing for Publication
5. Scientific and Technical Graphics
6. Transfer of Technology
7. Professional Writing
8. Direction of Training in Business and Service Organizations

Potential employers ranked them this way:

1. Scientific and Technical Writing
2. Transfer of Technology
3. Scientific and Technical Presentations
4. Writing for Publication
5. Effective Listening
6. Scientific and Technical Graphics
7. Professional Writing
8. Interviewing

The graduates ranked them this way:

1. Scientific and Technical Writing
2. Scientific and Technical Presentations
3. Advanced Public Speaking
4. Scientific and Technical Graphics
5. Writing for Publication
6. Professional Writing
7. Interviewing
8. Studies in Organization Communication, Conflict, and Change

Common to all three groups are these six courses:

- Scientific and Technical Writing
- Scientific and Technical Presentations
- Writing for Publication
- Interviewing
- Professional Writing
- Scientific and Technical Graphics

While writing is the skill most in demand, notice that all three groups expect the student to be educated to speak, interview, and understand graphic presentation. Our graduates also tell us we must stress report production and management more than we do.

In more recent research, McDowell and I classified technical communication competencies into six groups and asked existing programs if they had courses in the groups. Eighteen programs replied with these results:

Area	# Schools
• Writing and Editing	16
• Communication Theory	11
• Organizational, Managerial, and Training Communication	10
• Graphic Communication	9
o Oral Communication	6
• Media Communication	5

What about skills other than communication skills? If the program you envision is an undergraduate one, you must see to it that your students acquire certain knowledge necessary to their survival as practicing technical writers. In our program, for example, in addition to 70 quarter hours in a communication core, we require 4 hours of math, 4 hours of computer science, 18 hours of physical and biological science, and 20 hours of technical electives. In the latter, students take courses in areas in which they plan to work--computer science or biology, for example. We also require courses in the history of science. We encourage additional courses in computer science and in statistics.

Sixteen of the eighteen programs reporting require internships for their students. Here the student spends a term working in the field under the joint supervision of a practitioner and an academic instructor. Such experience is absolutely essential to students. It puts things together for them in a way that classroom work simply cannot do.

If the program you plan is a graduate one, you may be able to depend more on the scientific and technical knowledge your students bring with them. This allows you to concentrate more on the communication core. But I urge you not to allow students at any level to go out into the field naked of some knowledge of math, computers, and hard science.

After you learn what should go into a program, you must face squarely the question of whether you really have the proper environment for it. A proper environment means that you have people on your staff or in related departments who can teach such subjects as graphics, oral communication, interviewing, and communication theory. Course work in science and technology should be available. Your staff should be friendly to the idea of a program and honestly receptive to what it means in course work. If they merely see it as an occupational camouflage for teaching more literature, the program will founder.

Your community environment is also important. Not all existing programs are in urban areas or close to them, so I can't state categorically that such a location is necessary, but it certainly helps. In such a location, you will find practicing technical writers for your advisory committee. In such an area, you will find internships readily available. In such an area, your students may ultimately find employment.

To summarize. There is a good market for technical communicators that at least 25 schools are already supplying. The market seems

large enough for more schools. But programs should be intelligently planned based upon a good deal of knowledge that already exists about what technical communicators need. They should not be a hastily put-together collection of writing and editing courses. And, finally, such programs need the proper environment to flourish.

Schools and Departments Offering Technical Communication Degrees

Boston University: Science Communication

Bowling Green State University: Technical Writing Programs

Carnegie-Mellon University: English Department

Clarkson College: Humanities Department

Colorado State University: Technical Journalism Department

Florida Institute of Technology: Humanities Department

Los Angeles Trade-Technical College: Art Department

Metropolitan State College: Industrial Communications Department

Miami University, Ohio: English Department

Michigan Technological University: Humanities Department

University of Michigan--Ann Arbor: Interdisciplinary Engineering Program

University of Minnesota: Rhetoric Department

New Mexico State University: English Department

North Carolina State University: English Department

Oklahoma State University: English Department

Oklahoma State University Technical Institute: Technical Writing Department

Oregon State University: Journalism Department

Pittsburg State University: English Department

Polytechnic Institute of New York: Humanities and Communications Department

Rensselaer Polytechnical Institute: Department of Language, Literature, and Communication

Rock Valley College: Communications Division

South Dakota State University: Department of Journalism and Mass Communication

University of South Dakota at Springfield: Technical Communications

University of Washington: Scientific and Technical Communication Program

University of Wisconsin--Stout: Technical Communications

NOTES

[1] Paul V. Peterson, "Enrollment Surge Again, Increases 7% to 70,601," Journalism Educator, 33, No. 4 (1979), 3-8.

[2] Earl E. McDowell, L. David Schuelke, and Chew Wah Chung, "Evaluation of a Bachelor's Program in Technical Communication," Journal of Technical Writing and Communication, 10 (1980), 195-200.